



GulfFIN Committee

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GulfFIN MRIP Implementation Plan (2016-2018)

The Gulf Fisheries Information Network (GulfFIN) is a state-federal cooperative program to collect, manage, and disseminate statistical data and information on the marine and estuarine commercial and recreational fisheries of the Southeast Region. GulfFIN has been assisting state and federal partners with the coordination of operational recreational data collection efforts in the Gulf of Mexico, East Florida, and Caribbean since 1998. The Marine Recreational Information Program (MRIP) began in 2008 out of the need to develop changes in survey methods to improve the quality and coverage of recreational data. As MRIP evolved, GulfFIN members have played a more active role in assisting with these improvements. All five Gulf States have completed MRIP pilot research projects to test new data collection techniques that address a variety of important recreational data issues. As MRIP now transitions from pilot testing of new collection methodologies to implementation of the new methods, GulfFIN has developed this plan in response to regional needs in the Gulf of Mexico that would produce better data for regional fishery management and science while still working within the goals of the national plan.

Baseline Assessment of Current Regional Data Collection Programs

MRIP General Survey

The General Survey covers all recreational fishing for marine, estuarine, and anadromous finfish in all marine waters and estuaries bordering the states. This survey is currently conducted in Florida (Gulf and Atlantic coasts), Alabama, and Mississippi. It is the primary source of effort

and catch (both harvest and discards) estimates for shore, private boat, and for-hire charter modes.

The main objective of the MRIP General Survey is to produce bi-monthly catch estimates that are precise at the annual and regional (Gulf or South Atlantic) scale. Precise estimates of landings and discards on an annual and regional scale are adequate for federal stock assessments. Assessments for state-managed species use annual estimates at the state level, and these estimates are also adequately precise for common species. However, annual estimates at state and regional scales remain highly imprecise for species that are rarely intercepted in a general survey. For example, deep water fishing trips that target important managed species such as tilefish, snowy grouper, yellowfin tuna, or swordfish are rarely intercepted in the Access Point Intercept Survey (APAIS) portion of MRIP, and a catch estimate often cannot be generated when no anglers are intercepted. Fisheries that are limited in their geographic distribution also suffer from low precision. For example, hogfish in southeast Florida and the Keys are managed as separate stocks, and post-stratified estimates at the sub-state level are highly imprecise. The Florida Keys continue to be included in coast-wide estimates for the west coast of Florida; therefore, landings for fisheries managed as part of an Atlantic coast stock must be post-stratified from the Gulf. The MRIP General Survey has also struggled to deal with derby fisheries such as red snapper in the Gulf of Mexico and the Atlantic coast of Florida. With extremely short fishing seasons it has been difficult to allocate enough sampling effort during the open season to accurately capture the removals and fishing effort that are occurring. For this reason several states have developed specialized surveys to improve the accuracy of landings estimates for red snapper and other reef fish species.

While precise estimates at the annual level are adequate for assessment of stocks, they are often inadequate for managing recreational fisheries with Annual Catch Limits (ACLs). Bi-monthly (wave) estimates must be used to predict whether an ACL will be met before the end of a year, and fisheries are often closed in-season to prevent overages. Precise estimates on a shorter time scale would provide more certainty around managing fisheries with established ACLs.

Specific issues related to various components of the MRIP General Survey are discussed below in items 1-3.

1. MRIP Access Point Angler Intercept Survey (APAIS)

The primary focus of this portion of the MRIP survey is to measure CPUE for both harvested and discarded fish at the angler trip level, and collect length and weight measurements from harvested fish. Age composition of recreational catch is a critical data need for age-based stock assessments; however, current APAIS procedures do not allow for the collection of age structures (otoliths, spines) from landed catch. GulfFIN identified biological sampling integrated with recreational catch sampling as a high priority, and stock assessors have also stressed the importance of linking the ageing data to the landings data. However, integrated biological sampling may not be feasible at high pressure sites. New APAIS procedures require a complete accounting of angler activity. Asking samplers to collect age structures while ensuring a complete account of angler activity would be difficult for assignments during high activity periods and sites. Species not frequently encountered in the APAIS also will not benefit from this recommendation. Since it is recognized that the APAIS alone is unlikely to yield adequate

sample sizes for characterizing age composition, GulfFIN would like to discuss options for collecting ageing structures during APAIS interviews and the development of a supplemental sampling program that collects biological data that may be combined with data collected through MRIP.

Another priority identified by GulfFIN is improved data on recreational discards. Currently in the APAIS, CPUE information for discarded catch is based on angler recall of the number of each species released by each angler on each trip. Fish that are not legal to harvest make up a significant proportion of recreational catch (all or a majority for some highly regulated species), and the accuracy of recall at the dock is currently unknown. Significant concern exists as to whether current APAIS methods produce a truly accurate accounting of discards. Furthermore, dockside intercept surveys are inadequate for collecting information on the size and condition of fish released at sea, which are critical data needs for stock assessments. These issues have not been addressed in any of the pilot studies or statistical evaluations conducted to date through MRIP; therefore, GulfFIN is not prepared at this time to request specific improvements in APAIS methodologies with regards to discards. GulfFIN is requesting a workshop with NOAA Fisheries to explore additional methods for collecting improved recreational discard data.

2. MRIP For-Hire Telephone Survey (FHTS)

This component of the MRIP General Survey is focused specifically on estimating the numbers of angler trips in the charter boat fishing mode. The FHTS was implemented in the Gulf of Mexico in 2000 in response to criticism that the traditional Coastal Household Telephone Survey (CHTS) was inadequate as a method of obtaining fishing effort information for for-hire anglers, a large proportion of which did not reside in coastal counties sampled in the CHTS. This method has resulted in improved effort estimates for charter mode fishing in the region, which has improved overall precision of catch estimates for the charter fleet which encompasses, federally permitted vessels, inshore guide boats and vessels that operate in state waters only. However, non-response rates in the FHTS have steadily increased over time, and are approaching 20-30% in Alabama and Mississippi and 60% in some regions of Florida. Moreover, the current survey methodology does not meet new data monitoring needs for desired sector management options. In the Gulf of Mexico, federally permitted charter vessels are managed as a distinct sector with their own allocation. Tracking ACLs requires more timely and precise data and an ability to monitor catch at the individual vessel level. For this reason GulfFIN has identified increased timeliness of catch and effort estimates as a high priority. Both the Gulf and South Atlantic Councils are examining mandatory logbook reporting options for federally permitted charter vessels, which would overlap with the current FHTS. Electronic logbooks have the capability to produce more timely catch and effort data. Modifications to the FHTS may be necessary to achieved high levels of precision with monthly FHTS effort estimates. GulfFIN recognizes the need for improved methodologies that adequately address management needs without compromising fleet coverage and has already pilot tested a census style logbook reporting system in response to growing support for transitioning away from the FHTS approach. Although a full census was not achieved, several benefits of the logbook method were observed. Currently, no MRIP certified methods are in place for electronic logbook collections but GulfFIN recognizes the importance of logbooks in the for-hire sector and will continue to support and actively participate in research and implementation when possible,

and facilitate coordination among the Gulf and Atlantic. For the State of Florida, a large number of charter/guide vessels do not fish in the EEZ and are not required to abide by federal permit requirements. For these vessels, a logbook may not be a practical option for obtaining fishing effort information. Also, since the NRC 2006 recommendation was for universal use of logbooks for the for-hire sector, the FHTS was largely ignored as a viable alternative to logbook reporting. Although momentum for logbook reporting has increased, it has been acknowledged that the cost of a logbook program will be much greater than the cost for the current MRIP FHTS methodology.

3. MRIP Coastal Household Telephone Survey (CHTS)/Fishing Effort Survey (FES)

Fishing effort data for shore mode and private boat mode angling has historically been collected through the Coastal Household Telephone Survey (CHTS). Since the majority of shore and private boat trips are taken by anglers who reside in coastal areas the CHTS is limited to households in coastal counties. This survey is conducted in Florida, Alabama, Mississippi, and Louisiana (for benchmarking). The CHTS estimates the average number of trips per household in each coastal county and then expands by the county household population to estimate total angler trips. County estimates are summed to produce state-level effort estimates. In recent years MRIP has been testing alternate methods for collecting these effort data. It was determined that the CHTS is ineffective at identifying anglers because many households contacted have no anglers that reside there. Other than Florida, for which all counties are considered coastal, the survey has no method for contacting anglers that live inland of coastal counties. With more people abandoning landlines for cellphones a growing number of potential respondents have become unreachable. For this reason MRIP is transitioning to the extensively tested Fishing Effort Survey (FES). The FES is a mail survey that utilizes state recreational saltwater fishing license databases to target registered anglers and the U.S. Postal Service address database to distribute surveys to unregistered anglers. MRIP is currently in the benchmarking and calibration phase with full implementation (and discontinuation of the CHTS) expected in 2018. MRIP is also testing the feasibility of using a one-month recall period for producing monthly effort estimates. If successful this would help in addressing the priority of more timely catch and effort estimates to better address current fishery management needs.

The following items provide some additional information on additional ongoing recreational data collection programs in the Gulf of Mexico.

4. LA Creel Program

The Louisiana Recreational Creel Survey (LA Creel) was fully implemented on January 1, 2014 as a replacement for the MRIP General Survey in Louisiana. The LA Creel survey endeavors to aid in the management of Louisiana's valuable fishery resources by providing recreational fishery information about the rate of harvest of this resource, and participation in the harvest of this resource. The LA Creel survey is based on a complemented survey design, where an on-site access-point survey is combined with off-site telephone surveys in order to calculate total landings estimates for fish species across different recreational fishing activities. The access point survey is primarily used to estimate harvest rates (harvest per angler trip or harvest per charter trip) and the telephone survey is primarily used to estimate total effort (total number of

angler or charter trips). Total landings estimates for a certain period of time / region / mode of fishing are simply the product of the harvest rate and total effort values. LA Creel has already taken steps to address the issue of more timely catch and effort estimates. LA Creel is able to produce estimates as frequently as weekly when necessary. LA Creel is also collecting discard data through angler recall for a suite of federally and state managed species but is interested in exploring alternative methods. LA Creel was designed to increase the speed with which harvest data can be compiled into landings summaries, create a flexible design able to quickly respond to changing needs, provide information on Louisiana area-specific harvest for all species landed by anglers, and maximize survey efficiency while minimizing burden on anglers

5. Texas Parks and Wildlife Creel Survey

Texas Parks and Wildlife Department has been conducting on-site, trip-ending interviews of anglers at coastal boat-access sites since 1974. This survey is the only source of landings estimates for the state of Texas. The primary focus of this survey is private boat anglers fishing in the bays and passes (state waters) although private boat gulf fishing (EEZ), and for-hire boat fishing in both state and federal waters are also surveyed. Surveys are conducted year round and estimates are produced twice a year after each identified season. The high-use season is defined as May 15 to November 20. The low use season is defined as November 21 to May 14. This survey focuses solely on harvest estimates and no data on discarded catch is collected.

6. Florida For-Hire Observer Surveys

The Florida Fish and Wildlife Conservation Commission (FWC) has conducted at-sea observer surveys on for-hire headboats and charter boats since 2005. These surveys provide the only source of data available in the Gulf of Mexico or South Atlantic on the size, release condition, and mortality of recreational discards, and have filled important data gaps for assessing federally-managed stocks in both regions. Cooperating vessels are randomly selected each week for observer coverage during a for-hire recreational fishing trip. Fishery biologists board the vessel to directly observe fish as they are caught by anglers and either harvested or discarded at-sea. Fish are identified to species, measured, and information on how fish were captured and released is recorded. Regulatory discards are also tagged prior to release, and recapture data have been used to estimate discard mortality measured directly within the fishery. Data have also been used to characterize the size distribution of discards with respect to fishing depth, and evaluate the effectiveness of circle hook and venting requirements. Data from the Atlantic coast of Florida have been combined with data from North Carolina through Georgia to develop an index of abundance used in South Atlantic stock assessments for Red Snapper and Black Sea Bass.

The state has managed this survey with multiple short-term funding sources; however, spatial and temporal coverage has varied with available funding. Continuation of this fishery-dependent monitoring program is dependent upon stable and long-term recurring funding. Future funding prospects for the two for-hire modes are discussed below.

1. Headboat Mode

FWC has placed fishery observers on headboats on both the Atlantic and Gulf coasts since 2005. The first three years were funded through GulfFIN; however, level funding of

the Program forced an end in 2008. On the Gulf coast, the state has been able to continue coverage intermittently through a string of 2 to 5 year grants and will seek long-term funding to continue coverage on the Gulf coast through oil spill reparation funds. Unfortunately, the Atlantic coast of Florida is not eligible for oil spill funds. The state has been able to continue this work on the Atlantic coast since 2008 through competitive ACCSP grants; however, the time limit for this funding source will sunset after 2019 with no alternative funding sources on the horizon.

2. Charter Mode

FWC has placed fishery observers on charter boats in the northern and central Gulf since 2009, in the Keys since 2010, and Naples/Fort Myers since 2015. The state will seek long-term funding to continue Gulf-wide coverage through oil spill reparation funds. On the Atlantic Coast of Florida, charter observer coverage was funded for three years (2012-2015) through a competitive MARFIN grant; however, there are currently no funding prospects for continuing coverage, and this region is ineligible for oil spill funds.

7. Southeast Region Headboat Survey (SRHS)

The Southeast Region Headboat Survey (SRHS) is administered by NMFS Southeast Fishery Science Center (SEFSC) at the NOAA Beaufort Laboratory. This survey began operations in the Gulf of Mexico in 1986 and focuses on producing landings and effort estimates from the headboat fishery as well as providing age and length data used in stock assessments. Headboats in the Gulf of Mexico are defined as for-hire vessels with a capacity for carrying 15 or more passengers that primarily charge anglers “by the head”. There are two components to this survey, a dockside intercept program to obtain biological samples, and a self-reported logbook that provides daily catch records from each fishing trip. The SRHS has been collecting logbook data electronically since 2013 and is currently investigating dockside validation methods to verify these data.

8. GulfFIN Biological Sampling Program

GulfFIN has funded biological data collection for federal and state managed species since 2002. This sampling has been limited to the Gulf of Mexico, with no funding available for implementation on the Atlantic coast of Florida. Currently, state partners are collecting additional lengths, weights, and ageing structures from 15 priority species in the Gulf. Florida also samples many additional species during biological sampling assignments. Due to funding constraints, a rigid statistical sampling design has never been implemented, therefore staff collect opportunistic or targeted samples as time permits. Samples collected through this program represent the bulk of available information on the age composition of recreationally landed species in the Gulf of Mexico, and GulfFIN routinely provides age and length data to SEDAR for federal and regional stock assessments.

9. Florida Atlantic Coast Red Snapper Harvest Survey

During recreational mini-season (3 to 8 day) openings for red snapper in the South Atlantic, FWC conducts a specialized survey to improve precision around landings estimates for

the pulse fishery. For private boat mode, effort is estimated by monitoring vessel activity through vessel counts at ocean egress points, and CPUE is measured through a separate dockside intercept survey. Additional staff are also assigned to collect biological samples from intercepted parties. For charter mode, vessels selected for the MRIP For-Hire Telephone Survey are also interviewed about red snapper trips. FHTS sampling is augmented with additional vessels selected and only interviewed about red snapper trips. Landings estimates have been used in stock assessments and to account for ACLs, and length and age compositions have contributed to stock assessments.

The GulfFIN Committee met in March 2016 to determine a prioritized list of regionally important data needs. Extensive discussions during and after the face-to-face meeting resulted in the following prioritized list:

- 1. Full funding for general surveys at base sampling levels**
- 2. MRIP certified specialized catch and discard surveys**
- 3. Improved timeliness of recreational catch and harvest estimates**
- 4. Redesigned biological sampling program integrated with recreational catch sampling and expanded to include the Atlantic Coast of Florida.**
- 5. For-Hire electronic logbook implementation and validation**
- 6. Improved- recreational fishery discard data**
- 7. Improved spatial resolution and technical guidance for post-stratification of MRIP estimates**

Each priority is described below in more detail to provide justification for the regional importance along with the approach for implementation and the estimated annual costs. A few priorities in this plan yet to have certified MRIP methods for implementation but are worth discussing in this plan. GulfFIN will continue to update this plan annually as new methods are certified or as regional priorities change.

Full Funding for General Surveys

GulfFIN has coordinated the marine recreational survey (MRFSS/MRIP) in the Gulf of Mexico since 1998, and the survey has been the primary source of recreational landings data in the Gulf of Mexico for the last 30 years. Primary funding to support this work comes from the RecFIN line item appropriation, which has not seen a significant increase since 2005. The Gulf portion of the RecFIN line item averages around \$1M. After administrative fees and costs for supporting economic surveys and data collections by NOAA Southeast Fishery Science Center (SEFSC), the Gulf is typically left with about \$700k to support MRIP survey components in the Gulf. It is important to note that the cost for conducting the MRIP survey on both coasts of Florida is paid for out of Gulf funds. It's estimated that the cost of the MRIP survey for just the Atlantic Coast of Florida is approximately \$700k. The actual cost of implementing and administering the MRIP surveys in Mississippi, Alabama, and the Gulf and Atlantic coasts of Florida has averaged about \$3M annually. In recent years NOAA Fisheries recognized a need for increasing the base sampling levels so that precision levels could be maintained under the new

MRIP sampling protocols and provided an additional \$855k for enhanced APAIS sampling (Table 1).

Table 1. 2016 base numbers of APAIS assignments and enhanced sample.

State	NMFS Base			Enhanced			Total		
	SH	CH	PR	SH	CH	PR	SH	CH	PR
MS	102	92	201	0	30	38	102	122	239
AL	128	118	233	0	50	51	128	168	284
WFL	376	379	1,179	0	177	278	376	556	1,457
EFL	191	178	509	0	86	116	191	264	625
TOTAL	797	767	2,122	0	343	483	797	1,110	2,605

The funding shortfall for the MRIP surveys that is not covered by the RecFIN line item or NOAA Fisheries enhanced APAIS funding comes out of the GulfFIN appropriation. However, the GulfFIN appropriation is relied upon to cover costs associated with data needs in the Gulf for commercial fisheries and additional data needs for recreational fisheries beyond the MRIP General Survey. Covering the full cost of MRIP out of the GulfFIN appropriation has resulted in an inability to adequately fund other vital data needs in the region. For recreational fisheries in the Gulf, funding for biological sampling has been sustained at lower levels compared to the program start. Over the last few years biological sampling targets have been reduced by 5-15% to account for funding shortfalls. No funding is allocated for biological sampling on the Atlantic coast of Florida. Funding through GulfFIN to improve data for recreational discards by placing at-sea observers on headboats was completely eliminated in the Gulf in 2008 so that MRIP sampling levels could be sustained.

In order to maintain the current level of sampling effort, additional funding from NOAA Fisheries is needed to fully account for the increased costs of base APAIS sampling and other components of the MRIP General Survey. The combination of level funding for GulfFIN since 2005 and increasing costs of sampling and administration are now beginning to jeopardize each state's ability to sustain base sampling levels for the APAIS. Currently, Florida is supplementing a funding deficit in 2016 with one-time funds from other sources to maintain sampling levels, but once that funding source is expended the state will have to reduce the number of biological staff and subsequent sampling trips. The inability of GulfFIN funding to keep pace with the increased cost of the survey has reached a tipping point. New APAIS procedures implemented in 2013 require more staff time (i.e. no minimum or maximum interviews requires staff to remain on site the full six hours) and assignments are more costly to conduct (updated sampling protocols require two staff for a significant number of assignments). At the same time, the Affordable Care Act has increased personnel costs by approximately 30% which has translated in to less samplers in the field. The cost will be further increased after December 2016 when federal guidelines that mandate overtime pay are implemented. As level funding has continued and costs to conduct the surveys have increased, the additional costs not covered by the RecFIN appropriation and NOAA Fisheries are consuming a larger proportion of the GulfFIN appropriation which will result in base sampling levels being further reduced. Historically, GSMFC's State/Federal Fishery Management Committee has placed a priority on funding the base landings programs to the highest amounts possible. It's also possible that funding decisions would place a larger emphasis on other areas of data collection such as biological sampling programs in the future. This would

result in reduced funding for landings data collection programs and consequently reduced precision (and potentially reduced accuracy) of recreational estimates for a large number of state and federally managed species in both the Gulf and South Atlantic regions.

GulfFIN is requesting that NOAA Fisheries MRIP provide an additional \$1.4M in implementation funds to fully support the MRIP General Survey at base sampling levels. That would provide a total of \$3M (\$700k from RecFIN appropriation+\$855k to increase base APAIS sampling levels+\$1.4M in implementation funding, \$700k of which would be utilized to support the Atlantic Coast of Florida) for fully supporting all components of the MRIP General Survey at current base sample levels.

Implementation Funding Request: \$1,400,000

LA Creel Program

The mission of the Louisiana Department of Wildlife and Fisheries (LDWF) is to manage, conserve, and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, and education for the social and economic benefit of current and future generations. To properly manage a fish resource it is important to know, among other things, the population of that resource, the rate of harvest of that resource, and participation in the harvest of that resource.

The LA Creel survey endeavors to aid in the management of Louisiana's valuable fishery resources by providing recreational fishery information about the rate of harvest of this resource, and participation in the harvest of this resource. In 2014, Louisiana implemented the LA Creel survey as a replacement for the MRIP General Survey. The LA Creel survey is now the only source of recreational landings and biological sampling data for the state of Louisiana. For that reason we believe this to be a high priority and should be considered as the base survey program for the state of Louisiana, similar to the MRIP General Survey utilized in Florida through Mississippi.

The LA Creel survey is based on a complemented survey design, where an on-site access-point survey is combined with off-site telephone surveys in order to calculate total landings estimates for fish species across different recreational fishing activities. The access point survey is primarily used to estimate harvest rates (harvest per angler trip or harvest per charter trip) and the telephone survey is primarily used to estimate total effort (total number of angler or charter trips). Total landings estimates for a certain period of time / region / mode of fishing are the product of the harvest rate and total effort values.

LA Creel was designed with the following priorities in mind:

- Increase the speed with which harvest data can be compiled into landings summaries
- Create a flexible design able to quickly respond to changing needs

- Provide information on Louisiana area-specific harvest for all species landed by anglers
- Maximize survey efficiency and minimizing burden on anglers

LA Creel collects data and generates estimates on a weekly basis referred to as a period. Estimates are typically generated within 2 weeks of the end of the period for which the data was collected. This allows LDWF to use LA Creel estimates for in-season monitoring and more accurately predict when a quota will be met for a particular fishery. GulfFIN has identified increased timeliness of catch and effort estimates as a high priority. LA Creel already satisfies that priority with their ability to produce weekly estimates if necessary. LA Creel's flexible design allows LDWF to adjust its sampling protocol as regulations or seasons change. LA Creel's basin level estimates allow LDWF to see what is occurring in specific areas across the state and provides a higher level of precision. The streamlined survey design reduces the amount of time it takes to conduct an interview and increases the rate at which data can be reviewed and converted into estimates. In response to NOAA Fisheries concerns LA Creel is also collecting discard data for a list of priority species using angler recall during the access-point as the collection method. LA Creel supervisors though are also concern about the accuracy of discard data using angler recall methods and would like to discuss the possibility of identifying improved methods for collecting recreational discard data.

LA Creel is currently under review for Marine Recreational Information Program (MRIP) certification. As a result LA Creel has undergone a peer review by MRIP Independent Consultants. The peer review resulted in very favorable reviews of LA Creel by the consultants and it was recommended that LA Creel continue to move forward in the certification process. In addition, the consultants provided LDWF with some recommendations for improving LA Creel. LDWF implemented several of those recommendations including a change to a two stage design with primary and secondary sample units, utilizing a distinct strata selection process for site selection, and the addition of the ROLP question for all anglers encountered at the dock. LA Creel continues to go through the MRIP certification process and currently the dockside survey and for-hire effort survey have been recommended for certification by MRIP. Work still needs to be accomplished to determine the reasons for the larger differences in private boat mode effort between LA Creel and MRIP. Once that is accomplished we expect the entire program will be certified. The total cost of LA Creel and the dockside/for-hire effort survey are below. Once fully certified the request would be for funding support for the entire LA Creel program. If certification of the entire program is not obtained prior to 2017 funding allocation we would ask for funding support for just the dockside and for-hire effort modules.

Total Cost of LA Creel Program: \$1,939,504

Cost of LA Creel Dockside/For-Hire Effort: \$1,560,816

MRIP Certified Specialized Catch Surveys

Since 2014, several Gulf States have been working on specialized surveys to improve the accuracy of catch estimates. Some states such as Louisiana have developed surveys to improve accuracy for all state and federal species while others such as Florida, Alabama, and Mississippi are working to improve the accuracy of catch estimates for offshore species such as red snapper. Additional benefits to these specialized survey approaches are the ability to produce more precise estimates across shorter timeframes and for smaller geographic areas. As more federal species are being managed with ACLs we are seeing shorter and shorter fishing seasons in many cases and an increased dependency on MRIP catch estimates. States have already expressed that these specialized red snapper surveys could be utilized for additional reef fish species in the future. It's possible that the need for more accurate landings for a variety of species that are impacted by short seasons may make these specialized surveys more valuable in support of management goals in the foreseeable future. Throughout this entire process MRIP has worked with state partners to design data collection systems that improve the accuracy of catch estimates while meeting MRIP standards for certification. Currently, Louisiana, Alabama, and Mississippi are working with MRIP on getting their programs reviewed to ensure they have produced a scientifically sound and statistically robust survey that satisfies all MRIP requirements.

Alabama Snapper Check Program

Alabama's mandatory Snapper Check reporting program requires one representative from a fishing trip with red snapper on board to file a trip report when red snapper are landed in Alabama. Anglers may report via a smartphone app, toll-free telephone number, or by utilizing paper reporting tickets provided at Gulf-access public boat launches. Anglers must report the number of anglers, the trip type (Private/Charter), access type (Private/Public), vessel identification, number of fish retained, and number of fish discarded dead. Trip validations are also collected by ADCNR/MRD staff at randomly-selected launches or marinas in which the same questions as on the trip report are asked of the anglers and lengths and weights of harvested fish are collected, if possible. Attempts to match staff collected information with angler supplied information produces a correction factor. The correction factor is applied to angler reports in order to produce landings estimates. Information is collected at the trip level, and if necessary, daily estimates of landings may be produced. The validation assignments are randomly selected using MRIP parameters for site pressures and time blocks.

The MRIP APAIS assignments and Snapper Check assignments should be performed separately, with consideration of staff constraints. At this time, Snapper Check is designed to compare landings estimates to the MRIP estimates. Data from Snapper Check will be available for use in stock assessments. Snapper Check is in the process of being reviewed for MRIP certification. Snapper Check has been peer reviewed by MRIP consultants and Alabama is working to implement some of the suggested improvements from the consultant report. If certified Alabama is asking for MRIP Implementation funds to support the implementation of their specialized survey.

Total Annual Cost of Alabama's Snapper Check Program Currently: \$75,000

Mississippi Tails n' Scales Program

One of the most difficult aspects of fisheries management is the ability to collect reliable and timely data from the recreational fishing sector. Currently, the APAIS dockside survey captures harvest and effort information and the current sample allocation results in a low number of intercepts of anglers targeting Gulf of Mexico (GOM) red snapper. Two of the more challenging factors in collecting red snapper harvest and effort data are: 1) the short fishing season (e.g. 2015 ten-day season) and 2) the fact that vessels targeting red snapper utilize a small number of launch sites, some of which are private access site. There is a substantial probability that the regular MRIP survey will sample few, or none, of these sites.

Because of the importance of red snapper fishing in Mississippi, there was strong justification for a plan which provides more accurate accounting of red snapper harvested by anglers; therefore, at the May 2015 Commission on Marine Resources (CMR) meeting, the CMR granted the MDMR the authority to implement a mandatory red snapper reporting program. MDMR managers developed and implemented a reporting system and notified anglers to report their harvest and effort data for the 2015 red snapper season.

Mississippi has set a precedent with its mandatory reef fish reporting through the Tails n' Scales system as it is the only reporting system to require recreational anglers to obtain a trip authorization number prior to fishing for red snapper. Anglers must declare in the system that they intend to go fishing for red snapper by providing information such as date and time of departure and launch site. Anglers must have the trip authorization number with them during the trip for enforcement purposes. Anglers are required to register in the Tails n' Scales system prior to creating and closing trips. This system allows fishery managers the ability to obtain angler and trip estimates as well as target locations where a majority of anglers are launching and landing red snapper on a daily basis. Anglers must report harvest information before obtaining a new trip number. Tails n' Scales enables managers to acquire red snapper harvest data in real-time and effectively allocate employee time to validate red snapper fishing trips.

Surveyors conducted biological sampling on a daily basis at sites that were predetermined to have the highest probability of intercepting offshore fishing trips. The surveyor's priority was to collect as many lengths and weights of red snapper as possible. Otoliths were also collected if time permitted and the angler had no objections. Tails n' Scales trips were validated through dockside surveyor intercepts. Along with the biological data, trip authorization number, names and vessel registration numbers were collected.

Recently, in May of 2016, Mississippi's red snapper reporting system began the peer-reviewed certification process. Members from NOAA, GSMFC, and multiple academic consultants attended webinars and an in-person meeting to discuss the merits and limitations of the Tails n' Scales program. The consultants have provided feedback on the Tails n' Scales program as a valid red snapper catch estimation system. The consultants expressed confidence that the data collection program, with minor changes, is a scientifically acceptable system to estimate red snapper harvest.

Accurate and timely data in derby fisheries such as red snapper is essential for managers and scientists to make responsible decisions for the resource and the fishermen utilizing the

resource. Overall, this reporting program has provided the MDMR better data on the effort in the fishery and a more precise number of red snapper being landed in Mississippi; by making this reporting program mandatory, it has provided managers more accurate and precise real time data which can be used to monitor harvest of the target species and prevent overages in the future.

Currently, Tails n' Scales is only capturing harvest data on red snapper. In the future, as time and finances allow, MDMR hopes to expand the program to capture harvest data on other reef species as well as inshore species similar to the MRIP survey gathering data on all species harvested. The basic framework of Tails n' Scales has been built to handle the addition of multiple species in the future but some changes will have to be made to the system to allow expansion to a much larger user group within the state.

Total Annual Cost of Mississippi's Tails n' Scales Program Currently: \$60,000

Gulf-Wide Coordination

GulfFIN recognizes the importance of being able to combine statistics derived from these specialized surveys with the MRIP General Survey estimates to provide a complete accounting of catch and effort. Work is already underway in states with existing specialized surveys to determine the reasons for differences between estimates from specialized surveys and the MRIP General Survey. GulfFIN also proposes to hold a workshop for the purpose of bringing together federal and state partners to determine how to standardize raw and estimate data files to make utilization for stock assessment scientists less complicated. If agreeable by all state partners GulfFIN would serve as the repository for the data, which would allow access by federal and state partners from a single location.

The remaining items are all listed as high priorities but no funding requests are associated with these items. For some additional research is needed to determine appropriate MRIP certified sampling methods or data collection tools. GulfFIN recognizes that additional research in all of the following areas is critically important but at this time GulfFIN is not ready to request additional funding to support improvements.

Improved timeliness of recreational catch and harvest estimates

Currently, recreational estimates from the MRIP general survey are produced after two month sampling periods. Annual estimates of catch and harvest are often not available till March or April of the following year. GulfFIN believes that improving the timeliness of recreational catch and harvest estimates could provide several benefits. First, several federally managed species are being managed with Annual Catch Limits (ACLs) and having more timely estimates of removals helps fishery managers better predict when seasons need to be closed before landings exceed the ACL. In the for-hire fishery captains this could be extremely important as it could provide longer-term business planning capabilities. Also, having more timely estimates could help reduce gaps or buffers set between ACLs and Annual Catch Targets (ACTs)

essentially allowing anglers to harvest more fish by reducing uncertainty in landings. Currently, the new FES survey is being tested to determine if sufficient data is collected to produce monthly estimates. APAIS data collection is already processed in a timely fashion that would facilitate monthly recreational estimates. Gray triggerfish landings is one recent example of how more timely estimates could benefit fishery managers. The annual estimates for 2015 were not available until June 2016 along with the wave 1 2016 estimates. It was then determined that in 2015 the gray triggerfish ACL was exceeded by 39,000 pounds which resulted in a payback for 2016. That coupled with the preliminary wave 1 estimates and the projected 2016 landings allowed for the determination that gray triggerfish had already exceeded their 2016 ACT in early May. The resulting payback could result in a closed fishery for 2017 and also have impacts for a further reduced ACT in 2018. GulfFIN recommends that monthly estimates along with shorter lag time for annual estimates would be beneficial and provide fishery managers better information for making sound management decisions.

Redesigned Biological Sampling Program Integrated with Recreational Catch Sampling

Because of the spatial and temporal characteristics of recreational fishing effort, effective representative biological sampling of angler catches poses a number of challenges. Recent feedback from stock assessment scientists indicates that GulfFIN sampling methods need to be modified to better meet their data needs. The majority of GulfFIN recreational samples are collected opportunistically and may not be fully representative of the fishery. Appropriate weighting is also not possible if samples cannot be linked back to total landings at the trip level. One suggestion from GulfFIN was to allow for the collection of ageing structures during the APAIS, which would allow for recreational biological samples to be linked to the angler trip. GulfFIN recognizes that this could impact sampling productivity and adequate sample sizes may be difficult to achieve. This solution also would not fill data gaps in states that do not participate in MRIP. Thus, there would still be a need for dedicated funds to support supplemental biological sampling. Supplemental biological sampling should provide length and age compositions that are representative of the recreational catch and should also be compatible with existing catch monitoring programs (such as MRIP, SRHS and LA Creel) whenever feasible, so that data may be used together. If a supplemental survey that is compatible with catch monitoring is not feasible, a stand-alone biological sampling program will need to be implemented. GulfFIN plans to hold a workshop in late 2016 or early 2017 to discuss ways to improve biological sampling methodologies that best meet demands from stock assessment scientists. The goal is to first generate the necessary standards for data collection methods and minimum data elements and then determine how much funding it would take to implement the revised sampling design.

Louisiana recently implemented a new biological sampling program that is compatible with LA Creel and allows linking of biological data back to trip level catch. Florida is also collecting biological samples as part of their new Gulf Reef Fish Survey (GRFS), and those samples are linked to a trip level interview and may also be appropriately weighted and combined with data from MRIP. Thanks to a competitive three year MARFIN award, Florida will pilot test biological sampling methods on the Atlantic Coast starting in 2017. All of these developments further highlight the emerging need for coordination of supplemental biological

sampling across the region. There is also a need for well-defined data standards to ensure biological sampling programs across states are compatible and meet the needs for regional stock assessments.

For-Hire Electronic Logbook Implementation and Validation

GulfFIN assisted with the coordination and administration of a MRIP pilot research project in 2011 to test the feasibility of the use of a census-style logbook reporting method for the for-hire recreational fishery in the Gulf of Mexico. That study was conducted in direct response to recommendations made at the national level that the universal use of logbook reporting methods be implemented as the source of catch and effort statistics for the for-hire sector. Although a complete census was not achieved, this research recognized several potential benefits of a logbook reporting system and would not rule out logbook reporting as a feasible method for collecting catch and effort data. Since that research was completed, changes in fishery management practices has further strengthened the argument for the use of logbook methods in the for-hire sector. The Gulf of Mexico Fishery Management Council's (GMFMC) Reef Fish Amendment 40 currently provides a red snapper federal for-hire component that allocated a specific portion of the annual catch target (ACT) to the for-hire sector, and greater accountability through mandatory reporting would improve the ability of this sector to remain within their own ACL. GMFMC is considering changing the reporting requirements for the for-hire sector because they harvest a substantial portion of the recreational annual catch limit (ACL) for several federally managed species. Current preferred alternatives focus on federally permitted charter vessels submitting fishing records via electronic logbooks before returning from each fishing trip and utilizing NMFS approved electronic devices to record vessel location data at specified time intervals. These alternatives are moving towards logbooks and away from current MRIP methods for assessing catch and effort within the federally permitted for-hire sector. Although no certified methods are currently available, GulfFIN is aware that pilot projects are ongoing and that logbooks will potentially become an important tool for collecting data from the for-hire sector. Although logbooks will likely not be useful for the entire for-hire sector as states will be unable to mandate participation from state permitted vessels, GulfFIN recognizes the importance of logbooks in the for-hire sector and will continue to play a role in research and implementation when possible. As more work is completed and NMFS approved devices become available GulfFIN may ask for implementation funding to assist with this change in methodology in the future.

Effective logbook reporting requires ample funding for timely compliance tracking, follow-up for late and missing reports, and validation of reported information. As with the FHTS, dockside and at-sea biostatistical information will be required for size distribution information on harvested and released components of the catch. Logbook compliance with reporting requirements also depends on an effective enforcement mechanism. As part of this ongoing effort, GulfFIN will continue to work with NOAA Fisheries to evaluate methodologies that provide representative and cost effective catch and effort data for use in stock assessments as well as catch monitoring.

Improved Recreational Discard/Release Data

In response to stock declines, fishery managers have taken regulatory steps to reduce harvest in the recreational sector, including increased size limits and reduced bag limits, and recreational fishing seasons have been reduced to ensure harvest levels do not exceed management targets. This has translated into a growing portion of recreational catch that is released at sea and unavailable for direct observation in dockside surveys. Numbers of discarded fish are more difficult to quantify with precision than harvested catch, due largely to the fact that current methods rely on angler recall sometime after the trip has occurred. The APAIS, LA Creel Survey, and Texas Survey all employ dockside intercept surveys designed to collect detailed data from harvested catch. The APAIS and LA Creel Survey also collect angler-reported information on the numbers of released fish, but the Texas Survey does not. None of these dockside surveys collect information on the size or condition of released fish, the methods for capture or handling, or the depth of capture; all of which are important statistics for estimating fisheries removals attributed to discards. Data needs for stock assessment include accurate and precise estimates of numbers of fish discarded, the size distribution of discards (particularly for age-based assessments), the depth distribution of discarding, proportions of discards caught with circle hooks and/or vented prior to release, and reliable estimates for the proportion of recreational discards that suffer mortality following release.

From 2004 to 2007, GulfFIN was able to fund observer coverage on headboats operating from Alabama and both coasts of Florida. State biologists directly observed recreational anglers as they fished and collected information on the species composition, size, and release condition of discards. Since then, Florida has managed to continue coverage on the Atlantic Coast with funding through the Atlantic Coast Cooperative Statistics Program (ACCSP), and intermittently on the Gulf coast through a series of short-term grants and oil spill reparation funds. Through these grants, coverage has also expanded in Florida to include charter vessels on the Gulf and Atlantic (2012 to 2015 only) coasts, and information collected now includes depths fish are captured from and the types of hooks and release methods used (e.g. whether fish were vented). As part of this work, the state has also incorporated mark-recapture studies for regulated species which have been used successfully to estimate survival of fish following catch-and-release in the recreational hook-and-line fishery. Florida has also developed new methods to account for 100% of fish discarded from headboat trips, which may be used for validating logbook trip reports. All of these efforts have produced valuable data used in multiple stock assessments. However, funding to continue the surveys on the Atlantic Coast of Florida will sunset beginning in 2019 with no alternative funding sources on the horizon. Florida is hopeful coverage in the Gulf will continue longer-term through available oil spill funding. Comparable work has never been funded in the western Gulf of Mexico, although Texas was able to successfully place observers on a small number of charter vessels that participated in the 2012 Gulf Logbook Pilot Study to test methods for validating self-reported discards. Based on the success of projects funded to date, the use of at-sea observers in the for-hire fishery is proven to be a viable method for collecting supplementary data on discards that fills important data gaps in stock assessments.

With a stable and recurring funding source to support a long-term monitoring program for discards, MRIP certification of at-sea methods could be pursued so that methods could be fully implemented. An MRIP certified design could also include collection of complementary data in dockside intercept surveys, such as the areas and depths fished where discarding takes place, so that detailed knowledge of the size distribution and condition of released fish observed in the for-

hire fishery may also be applied and expanded to the private boat segment of the recreational fishery, for which observer coverage is not feasible.

GulfFIN is proposing to hold a workshop to discuss the benefits of current discard data collection methods along with potential improved methods through other means such as specialized surveys. Also, for stock assessment purposes, some discussion of data standards is needed to coordinate data more effectively between FIN partners for use in assessments and also for MRIP certification.

For the Atlantic coast of Florida, funding from NOAA Fisheries is required in order for the state to continue conduct of for-hire observer surveys long-term. Currently, ACCSP funds pay for 120 headboat observer trips per year at an annual cost of just under \$100k, subject to annual renewal. However, ACCSP is beginning the process of transitioning states away from long-term reliance on their limited funds. If Florida continues to receive ACCSP funds after 2019, the requested amount will be reduced 30% in 2020 and an additional 30% each subsequent year. For the charter fishery, Florida recently completed a three year MARFIN study which successfully demonstrated the feasibility of an observer monitoring program on the Atlantic Coast, and the state intends to initiate the MRIP Certification process so that implementation funds may be requested from NOAA Fisheries to cover both the headboat and charter fisheries.

Improved spatial resolution and technical guidance for post-stratification of MRIP estimates

Monroe County (Florida Keys) straddles two federal fishery management council jurisdictions and is a stock boundary for many assessments in the Gulf of Mexico and South Atlantic. Currently in MRIP, all effort and catch for this county is assigned to West Florida estimates regardless of waters fished. Although, estimates of landings and discards may be post-stratified to reassign to the Atlantic, there is often a need to split landings and discards from this county into two regions based on area fished (Gulf and Atlantic), and this is currently not possible. For example, the Life History Workgroup for SEDAR 38, which addressed assessment of king mackerel stocks in the Gulf of Mexico and South Atlantic, reviewed available information on stock boundaries. The Atlantic coast of the Florida Keys (the area south of the Dry Tortugas) was identified as a mixing zone for the two stocks, and it was recommended that king mackerel captured from this zone be assigned 50:50 to Gulf and Atlantic stocks. Moving forward, as methods to calibrate estimates to account for changes in MRFSS and MRIP methodologies are developed and unveiled, it will be important that guidance on the calibration of post-stratified estimates is coordinated to accomplish a more uniform stock assessment process at state and regional levels. It will be important to regularly revisit the issue of spatial and temporal resolution of the estimation process as management options and needs change.